

PROCESSING TOOLS, COMPONENTS OF PROCESSING TOOLS, AND METHOD OF  
MAKING AND USING SAME FOR ELECTROCHEMICAL PROCESSING OF  
MICROELECTRONIC WORKPIECES

ABSTRACT

Processing tools, components of tools, and methods of making and using such devices for electrochemical processing of microelectronic workpieces. One aspect of the invention is directed toward reaction vessels for electrochemical processing of microelectronic workpieces, processing stations including such reaction vessels, and methods for using these devices. For example, one embodiment of a reaction vessel includes an outer container having an outer wall, a first outlet configured to introduce a primary fluid flow into the outer container, and at least one second outlet configured to introduce a secondary fluid flow into the outer container separate from the primary fluid flow. The reaction vessel can also include at least one electrode, and it can also have a field shaping unit. The field shaping unit, for example, can be a dielectric assembly coupled to the second outlet to receive the secondary flow and configured to contain the secondary flow separate from the primary flow through at least a portion of the outer container. The field shaping unit can also have at least one electrode compartment through which the secondary flow can pass separately from the primary flow. The electrode is positioned in the electrode compartment.